

of copending application Serial No. 449,874 filed July 28, 1954, now abandoned, and

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b) a continuation-in-part of copending application Serial No. 712,443 filed March 12, 1968, now U.S. Patent No. 3,559,256, which in turn is a continuation-in-part of copending application Serial No. 387,954 filed August 6, 1964, now U.S. Patent No. 3,372,568, which in turn is a continuation-in-part of application Serial No. 219,357 filed August 13, 1962, now abandoned, which in turn is a continuation-in-part of copending application Serial No. 577,415 filed April 10, 1956, now U.S. Patent No. 3,049,247, which in turn is a continuation-in-part of copending applications Serial No. 477,467 filed December 24, 1954, now abandoned and Serial No. 449,874 filed July 28, 1954, now abandoned.

Page 2, lines 17, 18, 24 and 32 in each instance, delete "work piece", and insert --workpiece--.

Page 3, between lines 17 and 18, insert --Brief Description of Drawings-- as a subtitle.

line 26, delete "Fig. 1" and insert
--FIGURE 1--.

line 28, delete "Fig. 2" and insert
--FIGURE 2--.

line 29, delete "Fig." and insert --Figure--.
line 30, delete "Fig. 2" and insert
--FIGURE 2--.

line 31, delete "Fig." and insert
--Figure--.

Page 4, before line 1, insert --FIGURE 2" is a fragmentary sectional view of a means for coupling a tool assembly to an arm

fixture assembly in accordance with the invention;--

Page 4, line 1, delete "Fig. 3" and insert --FIGURE
3--.

lines 2, 4, 6 and 12, delete "Fig." in
each instance, and insert --Figure--.

line 3, delete "Fig. 4" and insert --FIGURE
4--.

line 5, delete "Fig. 5" and insert --FIGURE
5--.

line 7, delete "Fig. 6" and insert --FIGURE
6--.

line 9, delete "Fig. 7" and insert --FIGURE
7--.

line 11, delete "Fig. 8" and insert --FIGURE
8--.

Page 5, before line 1, insert --Detailed Description--
as a subtitle.

Page 6, line 10, begin as a paragraph.

Page 7, line 1, delete in entirety and insert --Figure
1 shows elements of an automatic produc- --.

lines 3, 6, 8 and 17, after the word "devices"
in each instance, insert --19--.

line 7, after "device", insert --or reader--.

line 12, delete in entirety and insert --or
other scanning means referred to as reader 12. The result of--.

line 14, after "of", insert --reader--.

line 19, after "scanner", insert --or reader--.

lines 20, and 27, delete "Fig." in each
instance, and insert --Figure--.

line 22, after "in", insert --reader--.

Page 7, line 24, delete in entirety and insert --machine or tool station generally designated 16.--.

line 31, delete in entirety and insert --tools or power operated devices 19 is activated through an assembly including a receiver-controller--.

Page 8, line 7, delete "The transport".

line 8, before "means", insert --The transport-- as the beginning of a new paragraph.

lines 9, 11, 17 and 29, after "devices" in each instance, insert --19--.

line 21, delete "work piece" and insert --workpiece--.

Page 9, line 1, delete "FIG." and insert --Figure--, after "2" insert --shows--, and after "tool", insert --T--.

line 4, delete in entirety and insert --rated remote therefrom. The automatically operative apparatus, generally designated 20,--.

line 5, after "tool", insert --carriage--.

line 7, delete "work piece" and insert --workpiece--.

line 8, after "tracks" in the first instance, insert --22 and 23--.

line 10, after "tool", insert --carriage--.

line 11, delete "such as".

line 14, after "first", insert --support--.

line 18, after "tool", insert --T--.

line 20, after "upper", insert --support--, and after "lower", insert --support--.

line 21, after "second", insert --support--.

line 22, after "along", insert --column--.

Page 9, line 23, after "carriage" in the second instance,
insert --30--.

line 27, delete "Notation 31".

line 28, delete in entirety and insert --A
single wheel 31' has a wedge-like peripheral indenta- --.

Page 10, line 3, after "carriage", insert --26--,
and delete "FIG." and insert --Figure--.

line 7, after "from", insert --support--.

line 9, delete in entirety and insert --to
arm 27a. Carriage 26 is secured to the end of assembly 27.--.

line 11, delete "27s and a" and insert --27s.--.

line 12, before "motor", insert --A--.

line 16, delete "defined by the notation T.--.

line 21, delete "work pieces" and insert
--workpieces--.

line 28, after "tool", insert --T--,
delete "Notation 32 refers to the shaft" and insert --Shaft
32--.

line 30, after "of", insert --member--.

line 31, after "tool", insert --T--.

Page 11, lines 1 and 4, after "tool" in each instance,
insert --T--.

line 1, delete "said".

line 4, after "of", insert --head-- , and
after "against", insert --member--.

line 7, delete in entirety.

line 8, before "of", insert --All-- , and
delete "which are".

line 9, after "tools", insert --T--.

line 10, after "24", insert --are mounted

in housing CO. Such components operate--.

Page 11, line 13, delete "FIG:" and insert --Figure--.

line 15, delete "Notation 28 refers to an--
and insert --An--.

line 16, after "assembly", insert --28--.

line 19, delete "assembly 24" and
insert --apparatus 20--.

line 21, delete in entirety and insert
--A retractor reel 35a of electrical cable 36--.

line 22, delete in entirety and insert
--extends between housing CO and the various motors mounted on
the car- --.

line 23, after "tool", insert --fixture--,
and delete "re-".

line 24, delete "tracter" and insert --retractor
reel--.

line 25, after "cable", insert --36--, and
delete "the" in the second instance.

line 26, before "assembly", insert --carriage--,
and after "assembly", insert --24--.

Page 12, line 5, delete "A photoelectric scanning
relay".

line 6, before "35", insert --A photoelectric
scanning-- as a new paragraph.

line 7, after "arm", insert --fixture--.

lines 18 and 29, delete "work piece" in each
instance, and insert --workpiece--.

line 22, delete "reflex reflecting" and insert
--reflex-reflecting--.

line 24, Delete "FIG." in each instance and

insert --Figure--.

Page 12, line 25, after "switches", insert --117 and
118--.

line 26, delete "tool", and after "housing",
insert --of tool assembly--.

line 30, after "on", insert --assembly--.

Page 13, line 3, delete "work piece" and insert
--workpiece--.

line 4, delete "work-piece" and insert
--workpiece--, and delete "work-mount" and insert --workmount--.

line 7, delete "work piece" and insert
--workpiece--.

line 8, after "device", insert --T--.

line 9, after "arm", insert --fixture--.

line 25, delete in entirety and insert
--In Figure 2 motor MR is operative to--.

line 26, after "servo", insert --motor MR--.

line 27, after "to" in the second instance,
insert --arm--.

line 28, after "of", insert --arm--.

line 30, after "arm", insert --fixture--.

Page 14, line 5, after "of", insert --arm--.

line 7, after "which", insert --tool assembly--,
and after "of", insert --arm--.

line 7, delete "A fixture for holding".

line 8, before "a", insert --A fixture for
holding-- as a new paragraph.

line 9, delete "way".

line 11, after "position", insert --carriage--.

line 12, delete "tool", and after "housing"

insert --of tool assembly--.

Page 14, line 13, after "of", insert --arm--.

line 16, delete "FIG.", and insert --Figure--.

line 17, after "of", insert --arm--.

line 20, after "fixture", insert --assembly--.

line 21, after "of", insert --fixture--,
delete "is", and insert --has a--.

line 22, delete "at its", and delete "at".

line 23, delete "tool", and insert --the--,
and after "mount", insert --of tool assembly--.

line 26, delete "such as".

line 27, after "within", insert --the--, and
after "housing", insert --of tool assembly--.

line 28, after "of", insert --fixture assembly--,
and after "within", insert --tool assembly--.

line 29, before "engage", insert --contact
members--.

line 29, after "is", insert --effected--.

line 30, delete in entirety and insert --In
Figure 2' a push-pull, bistable solenoid 27sc is-- as a new
paragraph.

Page 15, line 1, after "within", insert --fixture
assembly--.

line 2, delete "shaft, which connector", and
insert --shaft. Connector C--.

line 4, after "within", insert --tool assembly--,
after "upon", insert --coupling-- and delete "assembly", and
after "of", insert --assemblies--.

line 8, after "Thus", insert --,--.

line 9, after "arm", insert --assembly--.

Page 15, line 10, after "with", insert --the--, and
after "housing", insert --of tool assembly--.

line 12, after "solenoid", insert --27sc--.

line 15, delete in entirety and insert
--with tool assembly 27c. A key or shaped por- --.

line 16, delete in entirety and insert --tion
27k on the housing of tool assembly 27c projects therefrom and
is used--.

line 17, after "assembly", insert --27c--.

line 18, delete "tool", and insert --is--,
and after "with", insert --fixture assembly--.

line 19, delete "FIG.", and insert --Figure--.

line 21, delete "30" in the second instance
and insert --22--.

line 23, delete "Notation 30s refers".

line 24, delete in entirety and insert --A
solenoid 30s mounted on the sidewall of carriage 30 has an--.

line 26, after "track", insert --22--.

line 28, delete "said trackway" and insert
--track 22--.

Page 16, line 1, Delete "Fig.", and insert --Figure--.

line 4, after "console", insert --generally
designated-- , and after "50", insert --,--.

line 5, delete "Said", and insert --The
command control--.

line 11, after "of" in each instance, insert
--device-- , and after "and", insert --outputs--.

line 13, delete "outputs" and insert --command
messages--.

line 14, after "devices", insert --in

work stations--.

Page 16, line 24, delete "which", and delete
"switch," and insert --and--.

line 27, delete "said", and after "relay",
insert --CR-1--.

line 28, delete "an" and insert --the--, and
delete "a respective of".

Page 17, line 1, delete "said", and after "relay",
insert --CR-2--.

line 9, after "drum", insert --65--.

line 11, delete "the drums", and insert --drum--.

line 22, delete in entirety and insert --switch
66. The single output 66' of switch 66 is connected to the--.

line 29, after "servo", insert --68s--.

Page 18, line 11, delete "30, which switch" and
insert --30. Switch 49'--.

line 16, delete "cation, which", and insert
--cation and--.

line 18, delete "thereto, which" and insert
--thereto. Such--.

line 31, delete "and" and insert --controller
PrCMz--.

line 32, delete in entirety and insert
--control the servo motor Mz which drives carriage 26 in a--.

line 33, delete "said", and after "tool",
insert --T--.

Page 19, line 9, delete "Said servo" and insert
--Servo--.

line 20, delete "Fig." and insert --Figure--.

line 26, delete in entirety and insert --trol

devices MTC. In their simplest form, control devices MTC may comprise mul- --.

Page 19, line 29, after "MT-2", insert --. Such gating means may be--.

Page 20, line 1, delete "Assuming" and insert --Assume--.

line 1, delete "carrier".

line 2, before "assembly", insert --tool carriage--.

line 5, after "on", insert --carriage--.

line 6, delete "Mx, a" and insert --Mx. A--.

line 9, delete in entirety and insert --motor Mx. Thus, assembly 24 is driven along track--.

line 10, delete "work piece" and insert --workpiece--.

line 11, delete "said" and after "track", insert --22--.

line 12, delete in entirety and insert --by tool T mounted on carriage assembly 24--.

line 13, before "22", insert --As carriage 30 travels along track-- as the beginning of a new paragraph.

line 27, after "of", insert --motor--.

line 30, after "of", insert --motor--.

Page 21, line 1, delete in entirety and insert --shaft of the output of gear motor MR. Switch SWMR provides--.

line 6, delete "The".

line 7, before "output", insert --The-- as the beginning of a new paragraph.

line 7, after "of", insert --motor--.

line 12, after "of", insert --motor--.

line 18, begin as a new paragraph.

Page 21, line 21, delete "Fig.", and insert --Figure--.

line 22, after "provided", insert --(1)--.

line 24, after "position", insert --, (2)--.

line 25, delete "represented by notation"

and after "or" in the second instance, insert --, (3)--.

line 26, delete "for controlling", and
insert --to control--.

line 30, delete "affected" and insert --effected--.

Page 22, line 13, delete "it is noted that".

line 15, delete "designated".

line 23, delete "In their simplest".

line 24, before "form", insert --In their
simplest-- as the beginning of a new paragraph.

line 27, after "through", insert --control
device--.

Page 23, line 9, after "of", in the second instance,
insert --element--.

line 12, after "tween", insert --element--,
and after "and", insert --control--.

line 14, after "Thus", insert --,--.

line 15, after "control", insert --5--.

line 21, after "of" in the first instance,
insert --motor--.

line 26. delete in entirety and insert --column
assembly 25.--.

line 27, before "by said carriage", insert
--Upon attainment of said lowermost position-- as the beginning
of a new paragraph.

line 27, delete "said", and after "carriage",
insert --26--.

Page 24, line 4, delete in entirety and insert --To include the predeter- --.

line 13, after "uncounts", insert --,--.

line 20, delete "In".

line 21, before "other words", insert --In-- as the beginning of a new paragraph.

line 29, after "of", insert --motor--.

Page 25, line 6, after "of", insert --controller--.

line 7, delete "While".

line 8, before "the multi-circuit", insert --While-- as the beginning of a new paragraph.

line 8, after "controller", insert --MTC--.

line 20, after "of", insert --motor--.

line 21, after "of" in the first instance, insert --switch--.

line 22, after "of", insert --motor--.

line 23, delete "is provided in the circuit" and insert --located--.

line 24, after "of", insert --servo--, and delete "so as to delay" and insert --delays--.

line 28, after "of", insert --servo--.

line 31, delete "said" and after "carriage" insert --26--.

line 33, after "tool", insert --carriage--, and delete "or carrier".

Page 26, line 7. delete "It is briefly noted that if" and insert --If--.

line 26, delete "Fig.", and insert --Figure--.

line 28, delete in entirety and insert --In Figure 3, a coded relay CD is operative to--.

Page 26, line 30, before "CD", insert --Relay--.

Page 27, line 7, delete "MTC so that" and insert
--MTC. Thus,--.

line 11, Delete "Fig.", and insert --Figure--.

line 17, Delete "Fig.", and insert --Figure--,
and after "3", insert --,--.

line 18, delete "is provided with" and
insert --has--.

line 27, delete "Fig.", and insert --Figure--.

line 29, delete "said".

Page 28, line 14, delete in entirety and insert
--on the same track. To retain--.

line 22. delete in entirety and insert --sive--.

line 23, before "operative to connect", insert
--A rotary stepping switch 67 in Figure 3 is-- as the beginning
of a new paragraph.

line 30, delete "48", and insert --49--.

Page 29, line 7, delete "said analog may", and
insert --The analog signals may--.

line 10, after "from", insert --console--.

line 12, delete "In other words, apparatus".

line 13, before "of the type" insert --In other
words, apparatus-- as the beginning of a new paragraph.

line 14, delete "means of".

line 25, after "drum", insert --65--.

line 30, after "drum", insert --65--.

Page 30, line 16, after "transport", insert --assembly--.

lines 18, 19 and 24, delete "Fig." in each
instance and insert --Figure--.

line 22, delete "work piece" and insert

--workpiece--.

Page 30, line 26, delete "it is noted that".

Page 31, line 1, delete "Feedback".

line 2, before "Signals generated by", insert
--Feedback-- as the beginning of a new paragraph.

line 5, after "of", insert --servo--.

line 12, delete "Thus, if".

line 13, before "the command control" insert
--Thus, if-- as the beginning of a new paragraph.

line 15, after "circuit", insert --57e--.

line 19, after "of", insert --switch--.

line 22, after "of", insert --servo--.

Page 32, line 3, after "and", insert --switch--.

line 12, after "of", insert --circuit--.

Page 33, lines 1, 7, and 11, delete "Fig." in
each instance and insert --Figure--.

line 9, delete "Figs." and insert --Figures--.

lines 14, 16, and 19, delete "work piece"
in each instance and insert --workpiece--.

line 17, delete "work" and insert --work- --.

line 23, delete "work" and insert --work- --.

line 29, after "is" and "course" respectively,
insert --,--.

Page 34, line 10, delete "Thus if the command control
mes-".

line 11, before "sage is operative", insert
--Thus, if the command control mes- -- as the beginning of a
new paragraph.

Page 35, line 14, delete "Each".

line 15, before "assembly or moveable",

Page 35, line 20, delete "evential", and insert
--eventual--.

Page 36, line 10, delete "A combin-".

line 11, delete "ation of", and insert
--A combination of-- as the beginning of a new paragraph.

line 19, delete "are coupleable", and
insert --may be coupled--.

Page 37, line 1, delete "In Fig. 6 is shown", and
insert --Figure 6 shows--.

line 5, delete "Fig.", and insert --Figure--.

line 7, after "conveyor" in the first instance,
insert --driven by motor MC--.

line 12, delete "In Fig. 6," and insert
--Figure 6 discloses--, and delete "are provided".

line 25, delete "transferring and, if" and
insert --transferring. If--.

line 26, after "process", insert --is--.

Page 39, line 15, delete "Figs.", and insert
--Figures--.

line 16, delete "onr", and insert --one--.

line 18, delete "3.259,958" and insert
--3,259,958--.

line 22, delete "pallets.", and insert
--pallets,--.

Page 40, line 7, delete "relaystorage", and insert
--relay storage--.